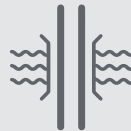


# STREAM CROSSINGS

## FACTS & FAQs

### WHAT IS A...

#### STREAM CROSSING



According to North Dakota Administrative Code (N.D.A.C.) section 89-14-01-02, a "stream crossing means an opening to permit the flow of water under, adjacent to, or because of a highway."

#### HIGHWAY



According to North Dakota Century Code (N.D.C.C.) section 24-01-01.1(22), a "highway, street, or road" is "a general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way. A highway in a rural area may be called a 'road', while a highway in an urban area may be called a 'street'."

#### STREAM CROSSING DETERMINATION



A stream crossing determination is a formal determination of flow (i.e., discharge) provided by the Office of the State Engineer (OSE) upon request from an eligible party under N.D.C.C. section 24-03-08.

# WHO, WHAT, WHERE'S ON STREAM CROSSINGS



## WHO HAS JURISDICTION OVER STREAM CROSSINGS?

Generally, the road authority has jurisdiction over culverts, bridges, etc. in their roads, whether that be the township, county, municipal, or state road authority. Water resource districts only have authority over culverts needed to accommodate a “drain.” Jurisdiction has been litigated in the North Dakota Supreme Court in several cases. A good resource for discussion on this topic is the “Roadways” section of the North Dakota Water Managers Handbook, which is available from the [North Dakota Water Resource District Association](#).

## WHERE CAN I FIND THE APPLICABLE LAWS REGARDING STREAM CROSSINGS?

N.D.C.C. titles 24 and 61 include the laws directly or indirectly relating to stream crossings, depending on the specific issue. The specific laws generally governing stream crossing determinations include:

- N.D.C.C. section 24-03-06
- N.D.C.C. section 24-03-08
- N.D.C.C. section 24-06-26.1
- N.D.A.C. article 89-14

## WHAT ARE “STREAM CROSSING STANDARDS?”

“Stream Crossing Standards” are minimum design standards for road crossings that were developed by the OSE and N.D. Department of Transportation (NDDOT) to further refine the requirements of N.D.C.C. section 24-03-08. In short, Stream Crossing Standards are the minimum design standards for a stream crossing to convey a standard recurrence interval (e.g., 10-year, 15-year, 25-year, and 50-year) flow rate (e.g., cubic feet per second). The “minimum design standards” for a crossing are located in N.D.A.C. chapter 89-14-01.

## WHAT IS THE PURPOSE OF STREAM CROSSING STANDARDS?

Stream Crossing Standards were developed in the early 2000s through a cooperative effort between the OSE and NDDOT to ensure reasonable road design requirements for all road authorities regarding stream crossings. Stream Crossing Standards attempted to balance upstream, downstream, and road authority interests with proper roadway design. Stream Crossing Standards were also developed to provide liability protection for road authorities, their contractors, subcontractors, or agents, and any individual firm, corporation, or limited liability company that installs stream crossings that comply with Stream Crossing Standards.

## WHEN SHOULD A STREAM CROSSING COMPLY WITH STREAM CROSSING STANDARDS?

Crossings installed before Stream Crossing Standards were adopted are considered “grandfathered” or “legacy” crossings if their construction pre-dated the Stream Crossing Standards design requirements. However, when a crossing is constructed or reconstructed, or when a stream crossing determination is made by the OSE, the new crossing must comply with Stream Crossing Standards. Compliance with Stream Crossing Standards affords a road authority liability protection as described in N.D.C.C. section 24-03-08 and N.D.A.C. section 89-14-01-01. However, enforcing compliance with Stream Crossing Standards is outside of the OSE’s jurisdiction.

## HOW DO I DETERMINE A CROSSING SIZE?

The crossing must be designed and installed under the road authority’s supervision to convey the design flow rate within the allowable headwater limitations provided in the Stream Crossing Standards. The crossing design can be highly dependent on the site location and topography, the road authority’s budget, availability of materials and contractors, etc.



# OSE STREAM CROSSING DETERMINATIONS

## WHO CAN REQUEST A “STREAM CROSSING DETERMINATION” AND HOW?

According to N.D.C.C. section 24-03-08, the following parties may request a stream crossing determination:

- Board of county commissioners
- Township supervisors
- A water resource board
- A petition of the majority of landowners of the area affected

The request can be submitted to the OSE by filling out a [Stream Crossing Determination Request form \(SFN 61885\)](#).

## WHAT INFORMATION WILL I GET IF I REQUEST AN OSE STREAM CROSSING DETERMINATION?

The requesting party will receive “the design discharge that the crossing is required to carry to meet the stream crossing standards” (see N.D.A.C. section 24-03-08). In other words, the requesting party will receive the minimum flow rate required at the crossing in question and for the particular recurrence interval required in Stream Crossing Standards.

The road authority shall install a culvert or bridge of sufficient capacity upon notification of the stream crossing determination made by the OSE, as described in N.D.C.C. section 24-03-08. The OSE does not recommend or suggest the size or shape opening necessary to meet “sufficient capacity” to convey the identified minimum flow. This is a task left to the road authority.

## HOW DOES THE OSE MAKE A DETERMINATION?

OSE staff will assess the location and determine the best engineering method to calculate the minimum flow rate. Typically, the acceptable engineering practice is to utilize the U.S. Geological Survey’s regression equations, which are summarized in [USGS’s Scientific Investigations Report 2015-5096](#). OSE staff will use these equations in combination with analyzing the most recent topographic data, typically GIS software and LiDAR data, to delineate a drainage area contributing to the crossing and develop the variables needed for the equations.

The OSE will verify culvert locations via aerial photography investigation. Typically, the OSE will not make a site visit to verify culvert locations unless it would make a substantial difference in the OSE’s determination. OSE staff will also identify non-contributing areas from several data sources and decide whether those areas should be included in the drainage area.

## USGS STREAM STATS

OSE staff often use [USGS’s Stream Stats](#) when feasible to do an initial approximation of the drainage area. This tool is publicly available online. While this tool provides an approximation of the drainage area and anticipated flow rate, the OSE does not recommend usage of this tool for formal stream crossing studies or determinations.

## OTHER METHODS

There are limitations to using the regression equations to determine a flow rate, so OSE staff may use other hydrology methods to verify the regression equations’ results or determine a flow rate.

## IS A ROAD CROSSING EVER CONSIDERED A “DAM?”

Generally, the State Engineer does not regulate highways or stream crossings as “dams” as long as the crossing meets Stream Crossing Standards. However, road authorities should properly place culverts at grade or channel bottom to ensure the crossing acts as an “opening to permit the flow of water” and does not otherwise impound water.

## WHAT ABOUT PRIVATE ROAD STREAM CROSSINGS?

Private road stream crossings are not subject to Stream Crossing Standards. However, any approach crossing within a road right of way must meet Stream Crossing Standards. Additionally, it is recommended that all private roads comply with Stream Crossing Standards so that the road does not act as a dam, as defined in N.D.A.C. section 89-08-01-01, or as an obstruction, as defined in N.D. Century Code section 61-16.1-51.

## WHAT IF I DISAGREE WITH AN OSE STREAM CROSSING DETERMINATION?

OSE stream crossing determinations are considered an “action or decision” by the State Engineer as described in N.D.C.C. section 61-03-22. Any person aggrieved by a stream crossing determination has 30 days to request a State Engineer hearing on the matter.



## OTHER IMPORTANT CONSIDERATIONS

- The OSE does not provide culvert or bridge sizing services.
- The OSE hydrologic review process incorporates NDDOT's approach to determinations, which takes a conservative regional approach.
- Site-specific detailed hydraulics modeling and review is beyond the scope of the OSE's determination services.
- Compliance with Stream Crossing Standards provides liability protection to the road authority and others (see N.D.C.C. sections 24-03-06, 24-03-08, and 24-06-26.1). Non-compliance may remove this liability protection.
- Nothing contained in the Stream Crossing Standards is intended to restrict a road authority from providing greater flow capacity in a crossing beyond minimum standards.
- If multiple crossings or an entire watershed is being considered, it may be more beneficial and economical to seek the assistance of a consulting engineer with experience in water resources engineering. They will be able to determine both the flow rate and crossing design necessary to comply with Stream Crossing Standards.
- If requesting a stream crossing determination for a NDDOT stream crossing, the OSE recommends contacting the applicable [NDDOT District Engineer](#) before submitting stream crossing request to the OSE.
- Road authorities may request a deviation from Stream Crossing Standards, but such a deviation must be approved by both the OSE and NDDOT. NDDOT has deviation authority over Stream Crossing Standards if it "determines it is appropriate to do so and the crossings are designed under scientific highway construction and engineering standards" (see N.D.A.C. section 89-14-01-06).

### MORE INFORMATION

Contact the OSE at (701) 328-2752 or by email at [swcregpermits@nd.gov](mailto:swcregpermits@nd.gov).

More information is available on the OSE's "Other Regulations" webpage [website](#).